Low-Level Radioactive Waste Disposal Facility Sitings: Negotiating a Role for the Public

I. INTRODUCTION

Citizens' fears of radioactive waste hazards coupled with public distrust of the nuclear industry influence construction of radioactive waste disposal facilities and are partially responsible for present shortages of storage space.[1] Since activities producing low-level radioactive waste provide many necessary services, particularly in medicine and industry, public fears must be ameliorated to allow operation of adequate facilities for waste disposal.

Difficulties characteristic of all types of waste disposal facility sitings are especially apparent in attempts to site low-level radioactive waste facilities. These difficulties make alternative dispute mechanisms useful in resolving many conflicts. Radioactive waste sitings, in particular, are greatly influenced by the public's knowledge of past failures in waste facility sitings. Furthermore, low-level radioactive waste facility sitings create unique dilemmas for mediation as the technical complexity of the disposal process and the controversiality of nuclear activities combine to impede the effectiveness of public participation required for advantageous facility siting decisions.

Since technology's effect on public participation in the low-level radioactive waste facility siting process is significant, this Note will discuss the implications of science and technology in such sitings. Potential avenues for improving public participation in facility sitings will be discussed as well, including the Citizens Board and Science Court.[2] In conclusion, this Note recommends implementation of a Negotiation-based Facility Siting Process as a procedure which would enhance the effectiveness of public participation in the low-level radioactive waste facility siting process.

II. THE LOW-LEVEL RADIOACTIVE WASTE DILEMMA

A. *A Temporal Crisis*

Low-level radioactive waste production in the United States is currently leveling off. This reinforces the misconception that current waste production levels will remain stable. Attempts to site facilities are then

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1. *See generally* Tarlock, *Anywhere But Here: An Introduction to State Control of Hazardous Waste Facility Location*, 2 UCLA J. ENVTL. L. & POL'Y 11, 21-22 (1981); Rea, *Hazardous Waste Pollution: The Need for a Different Statutory Approach*, 12 ENVTL. L. 443 (1982).

2. *See infra* text accompanying notes 93-105 discussing the Citizens Board and Science Court as alternative dispute resolution mechanisms.

thwarted by this false impression that current facilities provide adequate storage space.[3] The consequences are costly and dangerous.

Two-hundred million medical procedures performed every year generate low-level radioactive wastes.[4] However, medical researchers and experts on radiation and health warn that if negotiations to establish disposal facilities continue to drag, better health care at a reasonable cost will be sabotaged in two respects: (1) radioactive materials necessary for health care may not be produced because of the lack of storage, and; (2) those materials that are produced will become prohibitively expensive.[5]

The storage space shortage has other adverse consequences. By the year 2000, twelve commercial reactors may require decommissioning—the process of closing down a nuclear power plant in a way that prevents public access to the plant and prevents dispersion of radioactive materials.[6]

Since decommissioning significantly increases low-level radioactive waste generation, storage needs for this waste will increase far beyond present facilities. Therefore, the low-level radioactive waste problem must be resolved quickly through innovative alternative dispute resolution mechanisms. These mechanisms will improve public participation by recognizing both the nature of environmental disputes in general and the uniquely ideological conflicts accompanying nuclear-related policy decisions.

B. *The Nature of Environmental Disputes and the Recent Shift in Public Opinion*

Understanding the general nature of environmental disputes requires a recognition of past public perceptions of man's role within the environment. In the nineteenth century, Americans adhered to a biblical view of man's dominance over nature, manifesting this orientation in extensive and destructive exploitation of natural resources.[7] However, in the twentieth century, a shift occurred in the public's perceptions of environmental issues. The "manifest destiny" and expansionary philosophies of the 1800's dissipated. The twentieth century also brought with it realization of the need for both land development and preservation. In the 1970's, environmental concerns achieved their current prominence

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3. H.R. REP. NO. 314 pt. 2, 99th Cong., 1st Sess. 3, *reprinted in* 1985 U.S. CODE CONG. & ADMIN. NEWS (99 Stat.) 3002, 3005.

4. *Id.*

5. PRESIDENT & FELLOWS OF HARVARD COLLEGE, THE HARVARD MEDICAL SCHOOL HEALTH LETTER, *Not in My Back Yard: Low-Level Radioactive Waste and Health*, (1986), *excerpted in* 2 MIDWEST INTERSTATE LOW-LEVEL RADIOACTIVE WASTE COMMISSION UPDATE 2 (Oct. 1986).

6. LEAGUE OF WOMEN VOTERS, A NUCLEAR WASTE PRIMER 17 (1980).

7. S. MERNITZ, MEDIATION OF ENVIRONMENTAL DISPUTES: A SOURCEBOOK 3-5 (1980).

and the environment became a protected entity.[8] Justice Douglas' dissent in *Sierra Club v. Morton*[9] reflected this change, "Contemporary public concern for protecting nature's ecological equilibrium should lead to the conferral of standing upon environmental objects to sue for their own preservation."[10]

The shift in public opinion referred to in Justice Douglas' dissent had varied causes. First, the shift was created by the uniquely long-term and cumulative effects of environmental harms.[11] Public opinion changed as harms became more fully appreciated in the last twenty years.[12] Second, social values changed in the 1960's as anti-establishment impulses dominated.[13] Third, legal and political institutions developed innovative environmental remedies as solutions to natural resource conflicts.[14]

Although this shift in public opinion demonstrates the diverse nature of environmental conflict in general, the traditional diversity exemplifying environmental views is most apparent in the nuclear waste disposal dilemma. Conflicts plaguing facility sitings for low-level radioactive waste arise from technological uncertainty, public aversion to locally sited facilities, and ego-centric economic cost/benefit analyses.

C. *Sources of Environmental Conflict Regarding Nuclear Wastes*

1. *Technological Uncertainties.* Public opinion conflicts found in environmental issues are intensified in low-level radioactive wastes conflicts because of the technical nature of nuclear waste generating activities. The uncertainties which scientists, lawmakers, and the public must contend with are debilitating, "The courts have been continually baffled by adversary proceedings in which scientific experts from one side refute claims of experts from the other side."[15] Consequently, understanding and mitigating the many misconceptions pervading regulation of low-level radioactive wastes first requires an understanding of the nature of radioactive wastes.

Public uncertainty results from the tendency to confuse low-level and high-level radioactive wastes.[16] The major distinction made by the public

8. *Id.*
9. 405 U.S. 727 (1972).
10. *Id.* at 741-42.
11. L. BACOW & M. WHEELER, ENVIRONMENTAL DISPUTE RESOLUTION 1 (1984).
12. *Id.*
13. *Id.* at 2.
14. *Id.*
15. S. MERNITZ, *supra* note 7, at 8.
16. High-level waste refers to reactor fuel, liquid wastes from nuclear reactor operations cycles, and the solids into which liquid wastes have been converted. Most high-level radiactive waste in the United States is generated by nuclear power plants. Low-level radioactive wastes are generated in almost all activities using radioactive materials. These

between high and low-level radioactive wastes, relevant to disposal problems, is in the amount and toxicity of the waste. High and low-level radioactive wastes are distinguishable by the varied degree of hazard each produces and the time required to eliminate adverse affects.[17] High-level radioactive wastes must be isolated for thousands to tens of thousands of years, while low-level radioactive wastes must be isolated for a period of fifty to five hundred years.[18] Additionally, the amounts of wastes differ. The volume of high-level wastes, 250 million cubic yards generated yearly, greatly exceeds the 2.5-3.0 million cubic feet of low-level radioactive wastes disposed of annually in the United States.[19] Even though some estimates show that deterioration of most low-level radioactive wastes to safe levels of radioactivity will occur within twenty to thirty years, the definition of "safe" remains highly controversial and much of the debate concerning radioactive waste centers around the scientific uncertainty that characterizes both the time factors and the biological risks of radiation.[20]

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wastes are defined by what they are: "material which has been contaminated by radioactive elements or radionuclides;" and by what they are not: spent reactor fuel, wastes from reprocessed reactor fuel, uranium mine, and mill tailings. Their physical form varies from gaseous effluents and processing solutions, to contaminated protective clothing, needles, test tubes, and other research materials. Utility companies are the major source of low-level wastes producing approximately 64% of the wastes. However, medical research and services, and industries serving the medical community account for nearly 28% of low-level radioactive wastes. Finally, academic institutions produce three percent and the federal government two percent of low-level radioactive wastes generated in the United States. For a concise explanation of nuclear concepts, *see* ROLPH, NUCLEAR POWER AND THE PUBLIC SAFETY: A STUDY IN REGULATION, "Appendix C— Technical Notes: Basic Nuclear Concepts," 189-200 (1979).

17. The degree of hazard produced depends on the "half-life" of the radioactive waste. Half-life is the time it takes for the material's radioactivity to be reduced by half. Emission of alpha and beta particles determine the half-life. The following effects of radiation are discussed in LEAGUE OF WOMEN VOTERS, *supra* note 6, at 23-25. (A rem measures the amount of damage to human tissue from a dose of ionizing radiation. To be immediately lethal, radiation exposure to the body must exceed 1,000 rems over a brief period—minutes or hours, as at the Hiroshima and Nagasaki bombings. In the range from 500-1,000 rems, radiation sickness occurs which can result in death. However, low-level radiation creates cell damages. The type of cell affected determines the amount of damage. Damage to an ordinary cell (bone tissue of flesh) confines injury to that organism. This is somatic damage possibly resulting in cancer or leukemia. However, if a reproductive cell is damaged, mutations may occur. For both types of damage, the latency period—the time between exposure and effect—is long for cancer, 25 years, and a generation or more for genetic damage.)

18. *Midwest Interstate Low-Level Radioactive Waste Commission Regional Management Plan, Summary Report* 6 (Aug. 1, 1986) [hereinafter MIDWEST SUMMARY REPORT].

19. *Id.*

20. Kearney & Stucker, *Interstate Compacts and the Management of Low-Level Radioactive Wastes*, 45 PUB. AD. REV. 210, 214 (1985). For a general discussion of risks of nuclear power plant-generated radioactive wastes, *see* Schulze, Brookshire & Sandler, *The Social Rate of Discount for Nuclear Waste Storage: Economics or Ethics?*, 21 NATURAL RESOURCES J. 811, 812-14 (1981). *See also* Burness, *Risk: Accounting for an Uncertain Future*, 21 NATURAL RESOURCES J. 723, 725-30 (1981).

Distorted perceptions of the risks of nuclear power plants and radioactive waste disposal facilities result from complex and contradictory information promulgated by both the government and the scientific community.[21] For example, since 1957, when the federal government began setting standards for acceptable radiation dosages, standards have been steadily revised downward, based in part on the fact that "risk estimates for low levels of radiation are based on incomplete data and involve a large degree of uncertainty."[22]

Siting hazardous waste facilities involves debates in which "technical arguments can be found to support or refute any conclusion offered."[23] Furthermore, technology may be used to increase this uncertainty by its tendency to obscure value decisions through purposeful emphasis on technical information and by inadvertent disorientation shrouded in technical complexity.[24] Finally, technological complexity unavoidably complicates facility siting decisions as it intensifies local opposition to hazardous waste disposal facilities.[25]

2. *Local Opposition to Facility Sitings.* The tension between local concerns for health and safety and national concerns for economic and scientific progress exacerbates existing conflicts. Local opposition to waste facilities is reflected by the familiar acronym, "NIMBY"—not-in-my-back-yard.[26] Additionally, the public takes an egocentric view of radioactive waste risks because disadvantages of storage facilities are disproportionately concentrated in the locality where the facility is built. Although burdens are localized, benefits are spread over an entire state, or in the case of low-level radioactive waste, an entire interstate compact region.[27] Therefore, public aversion to hazardous waste facilities is rational and more difficult to combat.

3. *Judicial Balancing of Interests.* The final source of environmental conflict is within the courts' weighing of interests. The Minnesota District Court in *United States v. Reserve Mining* emphasized that "[a]ny

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21. *See infra* text accompanying notes 92-105 discussing the Citizens Board and Science Court as alternative dispute resolution mechanisms which may provide a solution to this dilemma.

22. D. MORELL & C. MAGORIAN, SITING HAZARDOUS WASTE FACILITIES: LOCAL OPPOSITION AND THE MYTH OF PREEMPTION 24 (1982).

23. *Id.* at 64.

24. Susskind & Weinstein, *Towards A Theory of Environmental Dispute Resolution*, 9 B.C. ENVTL. AFF. L. REV. 311, 319 (1980).

25. Bacow & Milkey, *Overcoming Local Opposition to Hazardous Waste Facilities: The Massachusetts Approach*, 6 HARV. ENVTL. L. REV. 265, 266-67 (1982).

26. *See also* Wolf, *Public Opposition to Hazardous Waste Sites: The Self-Defeating Approach to National Hazardous Waste Control Under Subtitle C of the Resource Conservation and Recovery Act of 1976*, 8 B.C. ENVTL. AFF. L. REV. 463, 524 n.284 (1980); S. MERNITZ, *supra* note 7, at 10.

27. *See infra* text accompanying notes 49-59.

environmental litigation must involve a balancing of economic dislocation with the environmental benefits."[28] The interests which must be weighed by both courts and administrative agencies vary with changes in public opinion and government policy. "Therefore, to the degree that it has an obligation to protect the public's interest as it is defined by the public, a regulatory agency must remain flexible and provide multiple points of access."[29] The courts presently emphasize the environmental interests reflected in land use and resource development legislation promulgated by Congress in the early 1970's:

1. The law should value the quality of human life above economic concerns;
2. The law should promote inanimate objects as living objects;
3. The law should balance environmental values against economic values.[30]

In recent years, shifts in public views on environmental issues have combined with drastic changes in public perceptions of nuclear power and radioactive waste generating activities. The resulting public uneasiness has had an enormous impact on the siting of low-level radioactive waste disposal facilities.

D. *Nuclear Power and the Public Sentiment — A Nuclear Camelot*

In 1954, nuclear energy was the knight on a white horse. Both the scientific community and the press made "outspoken predictions about the utopian benefits...of an energy source that would be 'too cheap to meter.'"[31] Opinion polls showed strong public support for the nuclear power program, support which continued from the 1957 opening of the first commercial nuclear power plant in Pennsylvania, to the end of the 1970's when seventy-one licensed commercial nuclear power reactors provided 12.5% of all electricity used in the United States.[32]

However, in the early 1970's, the anti-nuclear movement gained momentum and by the 1980's the nuclear industry was in "virtual paralysis."[33] Part of the decrease in public support resulted from the industry and policy-makers' failure to maintain the cost-effectiveness of

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28. United States v. Reserve Mining, 380 F. Supp. 11, 71 (D. Minn.), *application to vacate denied*, 418 U.S. 911 (1974).

29. R. ASHLEY, NUCLEAR POWER REACTOR SITING 163 (1965).

30. S. MERNITZ, *supra* note 7, at 8-10.

31. Comment, *Federal Supremacy Versus Legitimate State Interests in Nuclear Regulation*: Pacific Gas & Electric *and* Silkwood, 33 CATH. U.L. REV. 899, 905 n.40 (1984) *citing* Strauss, *Remarks Prepared for Delivery at Founder's Day Dinner*, National Association of Science Writers, New York City (Sept. 16, 1954) *quoted in* D. FORD, THE CULT OF THE ATOM: THE SECRET PAPERS OF THE ATOMIC ENERGY COMMISSION 50 (1982).

32. *See* LEAGUE OF WOMEN VOTERS, *supra* note 6, at 5.

33. *Id.*

nuclear energy.[34] Equally influential was a gap in the nuclear cycle caused by the lack of a permanent waste disposal system. These factors intensified the lack of confidence on the part of both nuclear plant investors and the public resulting in a large "credibility gap."[35]

This credibility gap also was created by the public's recognition of the federal government's inability to effectively manage radioactive wastes. Exemplified by the closing of most disposal facilities by the early 1970's, the federal government's management failures were caused by the policy-makers' sole reliance on exclusionary policies in controlling radioactive waste disposal.

III. FEDERAL MANAGEMENT OF RADIOACTIVE WASTE

A. *Exclusion Failures and the Origins of Concurrent Powers*

The exclusionary role of the federal government in disposal of radioactive wastes was first asserted in 1946 when Congress created the Atomic Energy Commission (AEC) and delegated to that administrative agency exclusive authority over the nuclear industry.[36] By 1971, the AEC had six federally-operated sites for shallow land-based storage of low-level radioactive wastes. However, most low-level radioactive waste was disposed of at sea, a method of disposal still used by Great Britain and France.[37]

Initially, most low-level radioactive waste was generated by the federal government in defense related military operations.[38] However, increased civilian applications of nuclear technology increased the need for disposal of commercially generated wastes. The importance of state cooperation in establishing commercial sites became apparent as storage space shortages developed.[39]

Recognizing the need to combat these early shortages, Congress promulgated section 274 of the Atomic Energy Commission Amendments of 1954 which integrated state action into regulation of radioactive waste

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34. *Id.*

35. M. GREENBERG & R. ANDERSON, HAZARDOUS WASTE SITES: THE CREDIBILITY GAP (1984).

36. In 1974, Congress abolished the Atomic Energy Commision and delegated its powers to the Energy Research and Development Administration and the Nuclear Regulatory Agency. The Nuclear Regulatory Agency now regulates and licenses all commercial nuclear activities, but is not responsible for licensing radioactive waste facilities. The newly created Department of Energy absorbed the Energy Research and Development Administration in 1977 and is now responsible for nuclear waste management, nuclear research, and development. LEAGUE OF WOMEN VOTERS, *supra* note 6, at 8-9.

37. Kearney & Stucker, *supra* note 20, at 214.

38. *Id.*

39. *Id.*

disposal.[40] Section 274 permitted states to regulate within the nuclear energy field by allowing a state to make "turnover agreements" with the Nuclear Regulatory Commission. These agreements allowed states to regulate low-level radioactive waste within state borders.[41]

Taking advantage of section 274, Nevada opened the first commercial low-level radioactive waste disposal facility in Beatty, Nevada in 1961.[42] Within ten years, five additional sites opened in South Carolina, Washington, Kentucky, Illinois, and New York, but by 1978 three of the six sites had been closed.[43]

These closings demonstrate the failure of the federal government's exclusionary policies as they resulted in inequitable distribution of the burdens of waste disposal. Since nuclear technology and waste products are concentrated in the eastern United States, South Carolina's facility, as the only facility operating east of the Mississippi River, receives 80-90% of all low-level radioactive waste produced in the United States.[44] In response, in 1979 the governors of those states hosting the three remaining facilities announced that their states would be unwilling to accept waste from outside their borders indefinitely.[45] Congress responded by enacting the 1980 Low-Level Radioactive Waste Policy Act (LLRW Policy Act) mandating that states develop a system of regional disposal sites for low-level radioactive waste.[46]

B. *Principles and Provisions of the Low-Level Radioactive Waste Management Policy Act and Amendments*

Passage of the Low-Level Radioactive Waste Policy Act in 1980 followed years of congressional and presidential mismanagement of nuclear waste disposal. Political and ideological conflicts prevented the development of a legislative and executive consensus regarding a nuclear waste management policy with specific goals.[47] The LLRW Policy Act was passed when it became increasingly apparent that legislative action was necessary since the courts and administrative agencies were reluctant to operate within the vacuum created by indecision at the federal level.[48]

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40. 42 U.S.C. 2011-2296 (1976).

41. Note, *The Role of Localities in the Transportation and Disposal of Nuclear Wastes*, 18 U. RICH. L. REV. 655, 663 (1984).

42. Kearney & Stucker, *supra* note 20, at 214.

43. *See* 1985 U.S. CODE & ADMIN. NEWS (99 Stat.) 3005.

44. *Id.* at 3006.

45. *Id.* at 3007.

46. Low-Level Radioactive Waste Policy Act of 1980, 42 U.S.C.A. § 2021c-d (West Supp. 1987) [hereinafter LLRW Policy Act].

47. SENATE COMM. ON ENERGY AND NATURAL RESOURCES, LOW-LEVEL RADIOACTIVE WASTE POLICY ACT, S. REP. NO. 548, 96th Cong., 2d Sess. 15 (1980) *reprinted in* 1980 U.S. CODE CONG. & ADMIN. NEWS 6933, 6938.

48. *Id.* at 11, *reprinted in* 1980 U.S. CODE CONG. & ADMIN. NEWS (94 Stat.) 6934.

Passage of the LLRW Policy Act also reflected the long-delayed recognition by Congress of its inadequacies in disposing of low-level radioactive waste.[49] The Senate Committee on Energy and Natural Resources Report published prior to passage of the Act affirmed the timeliness of the legislation, "Given the lead times associated with site selection, construction, environmental analysis and licensing...a need for Federal action exists...to provide insurance against a storage shortfall so that a critical shortage threatening reactor shutdowns will not occur in the near future."[50] Although the Act reflects congressional intent to maintain control over radioactive waste disposal management, it also emphasizes the realities of federal failures in waste disposal as the Act breaks with traditional reliance on exclusionary control policies by delegating limited authority to the states.

Recommending approval of the LLRW Policy Act, the Senate Report emphasized the uniqueness of the radioactive waste problem: "Nuclear waste presents problems we already have and will have no matter what our national decision is with regard to nuclear power."[51] In attempting to confront this highly complex and politically controversial problem with policies of compromise and cooperation, the 1980 Act and the subsequent 1985 Amendments prescribe a framework of interstate compacts creating a national disposal system for low-level radioactive waste. Three major principles are embodied in the Acts: (1) a state should be responsible for disposal of low-level radioactive waste generated within its borders; (2) compact states should have the power to preclude non-compact states from disposal of waste within their borders (provided stated requirements are met); and (3) interstate compacts are the preferred framework for acceptance of such responsibility.[52]

The first principle (individual state responsibilities) is reflected in section 1 of the LLRW Policy Act. Section 1 delegates to each state responsibility for disposing of all low-level radioactive wastes generated within its borders, either within an in-state facility, or within an interstate compact regional facility.[53] The second principle (policy of preclusion) is found in section 2021e of the Act, which, under specific circumstances, allows a state to forbid other states from disposing of waste in a facility within its borders.[54] Reflecting the third principle, incentive mechanisms are implemented encouraging states to fulfill their responsibilities in

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49. *Id.* at 12, *reprinted in* 1980 U.S. CODE CONG. & ADMIN. NEWS (94 Stat.) 6938-39.
50. *Id.* at 15, *reprinted in* 1980 U.S. CODE CONG. & ADMIN. NEWS (94 Stat.) 6938.
51. *Id.*
52. Kearney & Stucker, *supra* note 20, at 215-16.
53. 48 U.S.C.A. § 2021d(a)(1) (West Supp. 1987).
54. *Id.* at § 2021e(e)(2)(A)(ii).

interstate compacts. The 1980 Act states "[a]fter January 1st, 1986, any such compact may restrict the use of the regional disposal facilities under the compact to the disposal of low-level radioactive wastes generated within the region."[55]

The 1985 Amendments also propose an incentive method through "milestones" which are set out with similar enforcement weight.[56] Congress set out five new milestones in 1985 for the states, and set a target of January 1, 1992 as the date to begin operating the new low-level radioactive waste facilities.[57]

IV. Facility Siting and the Public

A. *Public Participation and Low-Level Radioactive Waste Legislation*

The 1980 LLRW Policy Act and the resulting interstate compacts represent both federal and state recognition of low-level radioactive waste problems and the need for facilities. However, it is crucial that individual states obtain local amenability to facility sitings by improving public understanding and increasing participation in siting decisions. The success of the policies and processes established by the LLRW Policy Act and the interstate compacts will ultimately depend on the degree to which the public understands and participates in the host state's facility siting. The societal benefits of strong citizen participation were acknowledged by Alexis de Tocqueville in 1840: "As soon as a man begins to treat public affairs in public, he begins to perceive that he is not so independent of his fellow-men as he at first imagined, and that, in order to obtain their support, he must often lend them his co-operation."[58]

Interstate compact commissioners emphasize that the host state will ultimately be responsible for siting the waste facility.[59] The public will have little impact on the initial decision regarding which state within a region will host the first facility.[60] The public, however, must contribute to the second step of the process—determining where, within the host state, the facility will be sited. The public's role in this decision will be similar to the role it presently plays in siting non-radioactive or toxic

55. LLRW Policy Act, Pub. L. No. 96-573, § 4(a)(2)(B), 94 Stat. 334 (1980)(codified at 42 U.S.C.A. § 2021d(c) (West Supp. 1987)).

56. The term "milestone" is used by Congress in the LLRW Policy Act to specify dates by which certain requirements of the Act must be met. Enforcement of these requirements is achieved by a system of surcharges and rebates.

57. 42 U.S.C.A. § 2021e(e)(2)(D) (West Supp. 1987).

58. De Tocqueville, Democracy in America 124-25 (F. Bowen ed. 1863).

59. Letter from Teri L. Vierima, Wisconsin Commissioner, Midwest Interstate Low Level Radioactive Waste Commission (Nov. 5, 1986) (in response to letter) [hereinafter Vierima Letter]; Letter from Robert M. Quillin, Ohio Commissioner, Midwest Interstate Low Level Radioactive Waste Commission (Oct. 29, 1986) (in response to letter).

60. *See* Vierima Letter, *supra* note 59.

waste disposal facilities. Consequently, conflicts found in non-radioactive hazardous waste disposal facility sitings are analogous to those which will specifically confront radioactive waste disposal sitings. Analysis of hazardous waste conflicts and of attempts at resolving them are necessary tools in examining and resolving contemporary problems in siting low-level radioactive waste disposal facilities.

B. *Current Public Participation in Toxic and Hazardous Waste Disposal Facility Sitings*

Disproportionate cost/benefit distributions have traditionally complicated public participation in non-radioactive waste facility sitings as reflected by the public's N.I.M.B.Y. orientation.[61] The need to resolve conflicts resulting from unequal but unavoidable costs distributions makes alternative dispute mechanisms especially applicable. In many states, negotiated siting agreements are already a recognized part of the process for siting toxic waste disposal facilities.[62] In fact, toxic waste facility siting is characterized as the "proving ground" for negotiation.[63] Yet, the role of the public in these negotiations is not to be understated: "In no other area have citizen groups shown themselves to be so necessary to ensuring protection of public health and the efficacy of government progress than in this most controversial part of toxic waste controls."[64]

Unfortunately, negotiation and mediation of facility sitings and other environmental issues raises the difficult question of who represents the "public interest." It also accenuates popular misconceptions that environmental disputes are basically scientific disputes requiring impartial referees.[65] Environmental mediation is also complicated by the potential irreversibility of ecological damage caused by "wrong" decisions.[66]

Effective public participation in environmental mediation further complicates nuclear energy issues in three ways. First, standard economic concerns must be balanced against traditional efficiency concerns and non-traditional value judgments. Second, the technical nature of the nuclear industry leads to scientific uncertainty and public distrust. Finally, the public objection to nuclear energy is often based on ideology, making negotiation difficult. Analyses of these three dilemmas are

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61. S. MERNITZ, *supra* note 7, at 10. *See supra* text accompanying note 26.

62. McGlennon, *A Model Siting Process and the Role of Lawyers*, 15 ENVTL. L. REV. 10239, 10240 (1985).

63. Anderson, *Negotiation and Informal Agency Action: The Case of Superfund*, 1985 DUKE L.J. 261, 328 n.248.

64. Hall, *Keeping the EPA Vigilant: The Role of Private Watchdog Agencies*, in BEYOND DUMPING: NEW STRATEGIES FOR CONTROLLING TOXIC CONTAMINATION 27 (B. Piasecki ed. 1984).

65. SUSSKIND & WEINSTEIN, *supra* note 24, at 324.

66. *Id.*

necessary to determine the potential of reform of the present siting process.

1. *Economic Benefits and Environmental Risks.* Obstacles to public participation in low-level radioactive waste facility sitings are apparent in an examination of the first conflict; the public's balancing of financial burdens with efficiency concerns and value judgments. Burdens of a low-level radioactive waste facility are concentrated in the vicinity of the facility. These burdens include health and environmental risks from accidents and improper operations, devaluation of nearby property,[67] and the stigma associated with living near any type of hazardous waste disposal facility.[68] By contrast, benefits are spread over large regions, even extending across state borders. Balancing these interests is exceedingly complex when viewed in light of public disagreements regarding value judgments and incompatible preferences for jobs, inexpensive energy costs, clean air and water, and freedom from radiation leaks and health risks.[69]

Without an alternative method of resolving disputes, the representational political system is poorly equipped to reach and resolve conflicts which result when society's aggregate gain requires imposition of enormous losses on a particular locality.[70] The locality may obtain economic benefits such as increased tax revenues, compensation payments to the local community, and new jobs.[71] However, widespread benefits are publicly viewed as negligible in the locality where a facility is sited.

The interstate compacts agreed to under the LLRW Policy Act are designed to mitigate the disadvantages present in this balancing dilemma. For example, the Midwest Low Level Radioactive Waste Interstate Compact Commission Draft Management Plan proposes incentives for siting a facility by proposing that a "volunteer approach" be used to designate a host state.[72] The plan encourages a Midwest Compact State to volunteer as the first host state, thereby qualifying for compensatory financial bonuses.[73] The plan also offers non-financial compensation by allowing local control over the facility through a monitoring and review committee.[74] The first host state could also benefit by a "National Center for Low-Level Waste Management" located in the first host state as a potential "international center of pre-eminent scientific and educational activity."[75]

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67. *See generally* M. GREENBERG & R. ANDERSON, *supra* note 35.
68. Bacow & Milkey, *supra* note 25, at 268.
69. *Id.*
70. L. THUROW, THE ZERO-SUM SOCIETY 11-12 (1980).
71. Bacow & Milkey, *supra* note 25, at 268.
72. *Midwest Summary Report*, *supra* note 18, at 57-58.
73. *Id.* at 58-59.
74. *Id.* at 59.
75. *Id.* at 59-60.

Despite these compensatory proposals, problems persist in convincing a state to host a facility. First, public perception of benefit to risk are not always accurate.[76] Second, compensatory benefits are sometimes viewed by the locality as bribes.[77] Finally, differing value judgments assign varying requirements on social costs.[78] Resolution of these dilemmas requires an emphasis on compensation as an *incentive*, not as a *substitute* for adequate safety and health standards.[79] Typically tax revenue increases alone are insufficient incentives. Pro bono activities may be necessary to negotiate a facility siting to prevent compensation from becoming bribery.[80]

2. *Technological Nature of the Nuclear Industry.* The second impediment to public participation, technological complexity of the nuclear industry, also relates to health and safety concerns. As discussed earlier, scientific debate continues over safety in disposing of nuclear waste: "Consistency among scientists has never been high with reference to nuclear technology, and this has created special problems for radioactive waste management."[81] Thus, the public's attempts to balance health and safety concerns with economic and social benefits are contingent upon increasing "civic science literacy"—the increase in public understanding of the technological and scientific issues.[82]

Public misinformation, for example, presents an especially difficult problem.[83] The misconception exists that low-level radioactive waste is generated solely from nuclear power plants.[84] This inaccuracy impedes the Interstate Compact Commission's ability to use public comment, "Where public participation is not based upon the facts, the Commission may not have an opportunity to hear the true public sentiment."[85] Recognizing that the Commission's "greatest challenge at this stage is

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76. Bacow & Milkey, *supra* note 25, at 277.

77. *Id.*

78. *Id.*

79. *Midwest Summary Report*, *supra* note 18, at 57.

80. McGlennon, *supra* note 62, at 10239 n.1 ("There are distinguishable meanings between compensation and bribe, and I prefer to refer to the exchange between an operator and host community as compensation. The community is actually being compensated for inconvenience or risk posed by the facility.")

81. Mileti & Williams, *A Sociological Perspective on the Siting of Hasardous Waste Facilities*, in WASTE MANAGEMENT '85, WASTE ISOLATION IN THE U.S., TECHNICAL PROGRAMS AND PUBLIC EDUCATION: Proceeding of the symposium on Waste Management at Tucson, Arizona, Mar. 24-28, 1985, at 72.

82. Shen, *Science Literacy and the Public Understanding of Science*, in COMMUNICATION OF SCIENTIFIC INFORMATION 48 (S. Day ed. 1975).

83. *See supra* text accompanying notes 16-25.

84. *Id.*

85. Letter from Joseph H. Snyder, Director, *Indiana Hazardous Waste Facility Site Approval Authority* (Nov. 5, 1986) (in response to letter).

public education,"[86] most interstate compacts include programs similar to the Midwest Compact's "Public Information/Participation Program," which work to educate the public. The technical complexity conflict may also be minimized by confrontation of public misconceptions in two unique alternative dispute mechanisms—the Citizens Board and the Science Court, discussed later in this Note.[87]

3. *Ideological Dilemmas.* The third barrier to public participation is an ideological conflict created by tension between the utility company-government "pro-nuclear" side of the nuclear energy conflict and the antinuclear "watchdog" side of the conflict. The public perception of pro-nuclear groups' "agency arrogance, expert elitism, and stacked-deck proceedings" is counter-balanced by perceptions of antinuclear groups' "'know-nothingism', blind anti-technology and anti-government sentiments...."[88]

A comparison of these two interest groups shows that both are somewhat equal in strength, cohesiveness, relative ideological perspectives, and communication networks.[89] The groups, however, differ as to the strength of their leadership. The antinuclear groups have more visible, publicity-intense leaders, while the nuclear industry has failed to produce strong leaders.[90]

The relative strengths of these interest groups vary in the context in which they operate. In administrative hearings for facility sitings, antinuclear groups are less influential since they direct objections toward nuclear activities generating radioactive waste, not disposal. Consequently, in low-level facility siting decisions, the nuclear interest group has a much greater impact.

These three impediments to public participation, inadequate balancing of interests, uninformed technological views of the nuclear industry, and persistent ideological conflicts, make low-level radioactive waste facility sitings ideal for reformation through alternative dispute mechanisms. Reform of the present system is necessary in light of the negative attitude expressed toward the public's role in siting of nuclear power plants, "[t]he cult of public participation in nuclear power licensing—which is in reality a sham...has been used by the establishment to give legitimacy and the appearance of credibility...."[91] Changes must be made.

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86. Vierima Letter, *supra* note 59.

87. *See infra* text accompanying notes 93-105.

88. S. EBBIN & R. KASPER, CITIZEN GROUPS AND THE NUCLEAR POWER CONTROVERSY: USES OF SCIENTIFIC AND TECHNOLOGICAL INFORMATION 4 (1974).

89. C. COOK, NUCLEAR POWER AND LEGAL ADVOCACY 9-24 (1980).

90. *Id.*

91. Green, *Federal Regulation and Impact of Health and Safety* 17, Transcript of Proceedings of the Conference on Legal Consequences of Nuclear Accidents and Shutdowns, July 27-28, 1979, Published by PENN. L.J.

V. IMPROVING PUBLIC PARTICIPATION IN THE FACILITY SITING PROCESS

Reform may be sought through both institutional and non-institutional means. Non-institutional reforms include alternative dispute mechanisms outside current statutory structures, for example, a Citizens Board or Science Court.[92] Institutional reforms consist of alternative dispute mechanisms formalizing public participation through statutes, or by relying on traditional spokespersons in a locality, such as city council members.

A. *Non-Institutional Reform*

Non-institutional reform is presently used to enlarge the public's role in various technologically-laden disputes requiring public participation. The Citizens Board and Science Court are two examples of this technique.

The Citizens Board was first used in 1976 in the siting of a recombinant-DNA laboratory in Cambridge, Massachusetts.[93] The laboratory siting sparked debate over the safety of DNA research in a densely populated area — a conflict similar to hazardous waste facility sitings in their locality-specific costs and N.I.M.B.Y. public perceptions.[94] An Experimentation Review Board was established, consisting of nine non-expert citizens appointed by the city manager. The Review Board was given advisory authority in the laboratory siting decision.

The Review Board was successful, establishing credibility with the community and resolving issues based on scientific merits and value decisions. However, the major problem with the Board was the education of its members on the technical information pertinent to the dispute. The education level of individual panel members appeared irrelevant to the problem of obtaining an understanding of the technical aspects of the discussion. However, the enormous amount of time needed for members to familiarize themselves with the problem proved to be a factor in the members' ability to understand the issue.[95]

These limitations on the Review Board's time and scientific training suggests a Science Court as an alternative procedure. This alternative dispute technique has traditionally been used by the FDA to gain expertise on a variety of complex scientific issues.[96] For example, Con-

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92. *See infra* text accompanying notes 93-105.

93. Krimsky, *A Citizen Court in the Recombinant DNA Controversy*, 34 BULLETIN OF THE ATOMIC SCIENTISTS 37-43 (Oct. 1978).

94. *Id.* at 42-43.

95. *Id.* at 39-43.

96. Dormer, *Use of Advisory Committees by the Food and Drug Administration Under the Medical Device Amendments*, 40 FOOD DRUG COSM. L.J. 103 (1985). *See generally* O'Brien, *The Courts & Science-Policy Disputes: A Review & Commentary on the Role of the Judiciary in Regulatory Politics*, 4 J. ENERGY L. & POL'Y 81 (1983).

gress made such scientific advisory committees a mandatory part of FDA regulation in the Medical Device Amendments of 1976.[97] Applicability of the Science Court technique to the low-level radioactive waste dilemma is demonstrated by the Administrative Conference of the United States' promulgation of section 310.11 in 1985.[98] The Conference made procedural recommendations for resolving scientific issues, and noted that agencies depending on scientific determinations, such as the Environmental Protection Agency, should consider using a science advisory board to resolve conflicts.[99]

The purpose of the Science Court, as an institutionalized forum, is to provide scientific, empirical judgments to policy makers through an adversarial process.[100] The Science Court is composed of scientist-judges who examine issues based on scientific merit by screening out evidence and setting up norms of science. Due to its factual nature, the Science Court is less prone to intimidation by "experts" since they are the experts. The Science Court also investigates more forcefully and effectively into complex scientific conflicts.[101]

The danger of a Science Court can be serious in the potential for members of the Court to divorce factual issues from policy and value decisions. Disputes based on factual dilemmas may be oversimplified by the Science Court, thereby masking value-laden decisions from policymakers.[102] Also, by allowing a Science Court to make such decisions, the public may be threatened by the Court as a mechanism usurping the role of public participation by being, "directed more toward coopting public support then changing decisions; more toward seeking informed consent than expanding democratic choice."[103]

Consequently, the Citizens Board appears to be more conducive to protecting the public's role in policy decisions since, in addition to the dangers of a technological fix, other conditions may be present making the Science Court less attractive as an alternative dispute mechanism. For example, the Science Court might prove disadvantageous when the political climate creates an appearance of self-interest, or where the jury of scientists considers the impact of its decision on the growth of university research. Additionally, in situations involving government

97. *Id.* The Canadian government adopted a similar alternative dispute mechanism in 1969, breaking with tradition by using a science court in the LeDain inquiry into the non-medical use of drugs. *See* Salter, *The Role of the Public in Scientific Determination of Policy: The Canadian Inquiry Process*, 31 U. TORONTO L.J. 343 (1981).

98. 50 Fed. Reg. 52896 (1985) (to be codified at 14 C.F.R. § 310.11).

99. *Id.*

100. Krimsky, *supra* note 93, at 46.

101. *Id.* at 42.

102. Nelkin & Pollak, *Public Participation in Technological Decisions: Reality or Grand Illusion?* 1979 TECH. REV. 55, 61 (1983).

103. *Id.* at 63.

regulation, scientists may fear setting precedents with the potential to affect their own interests. Finally, in decisions where technology and policy are inseparable, scientists may define the problem too narrowly and thus disregard integral social and value implications.[104] In light of its potential for establishing credibility with the community, the Citizens Board could be adapted in state facility sitings for low-level radioactive waste, provided intensive educational programs are available to supplement the Citizens Board's activities.[105]

B. *Institutional Reform*

Deciding whether to institutionalize reform by requiring public participation by statute or through local ordinance, turns on the resolution of the following questions:

1. To what degree should the state and a local community share power?
2. What governmental body should exercise local authority (city or county government or both)?
3. Within that body, what unit—legislative (city council) or executive (mayor)—has primary authority?
4. Should the state have preemptive rights over the locality (the home rule conflict)?[106]

Institutionalizing public participation by state statute would provide cohesiveness in establishing *improved* public participation in facility siting since states presently control the siting process through comprehensive statutory procedures.[107] Low-level radioactive waste facility sitings must be determined according to the needs of each individual state, and also according to the needs of the interstate compact region to which a state may belong. Therefore, altering the process of facility siting at the state level by institutionalizing public participation in state statutes would legitimize public participation and make the decision more acceptable to the public.[108]

Providing for statutory public participation in facility siting decisions could take six different forms:

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104. Krimsky, *supra* note 93, at 43.

105. *Id.* at 39 n.10, *citing* Federow, *Recombinant DNA in Cambridge: Lessons for Nuclear Energy*, Occasional Paper, Sept. 1977, the Institute for Energy analysis, Oak Ridge, Tenn: *shorter version in* BULLETIN OF ATOMIC SCIENTISTS 6-7 (Feb. 1978).

106. D. MORELL & C. MAGORIAN, *supra* note 22, at 101.

107. T. SULLIVAN, NEGOTIATION-BASED REVIEW PROCESSES FOR FACILITY SITING 32 (Jan. 1980) (unpublished Ph.D Dissertation) (available Harvard University Library).

108. *Id.* at 33.

1. Minimum formal participation (nonadjudicatory hearings);
2. Enhanced formal public participation (public involvement at earlier stages);
3. Enhanced formal participation in a process preceding regulatory decisions (advance distribution of documents, notice...);
4. Formal due process (adjudicatory hearing);
5. Direct electoral participation (initiative and referendum);
6. Interest representation in alternative dispute proceedings (mediation/negotiation/arbitration).[109]

These methods of institutionalizing public participation differ as to when the participation occurs and the extent to which the public materially affects the proceedings. Generally, the earlier the public participates in facility siting decisions, the more likely citizens will accept the final determination. This early impact is required to prevent public influence from being preempted from the facility siting process.[110]

The first four forms of institutionalization above are presently used in hazardous waste facility sitings. However, there are numerous ways of improving this process. The following section examines the potential for institutional reforms in the current process. Such reforms include the initiative and referendum, mitigation of home rule, and a restructuring of the siting process through implementation of a negotiation-based system.

1. *Initiative, Referendum, and Petition.* The initiative method defines the process through which citizens use petitions to initiate consideration of alternative siting agreements in addition to those already under consideration at a hearing. Although the initiative reform allows citizens to exert influence in initial stages of the siting process, it fails to prevent preemption of the public in subsequent stages.[111]

The referendum offers an alternative reform, as demonstrated by the South Dakota State Legislature which implemented referendum approval of its interstate compact in 1985. Public participation was legitimized as part of the state's low-level radioactive waste disposal policy.[112] The South Dakota legislature enacted a statute reserving to state residents the exclusive right to approve or reject South Dakota's entry into an interstate compact for low-level radioactive waste disposal.[113] This alternative mechanism was upheld by the South Dakota Supreme Court

109. Tarlock, *supra* note 1, at 24-25. The sixth form of institutionalization of public participation refers to the total reformation discussed *infra* at text accompanting notes 121-40.

110. Preemption occurs when decisions are made prior to or without public comment or participation.

111. Tarlock, *supra* note 1, at 24-25.

112. Wyatt v. Kundert, 375 N.W.2d 186 (S.D. 1985).

113. *Id.* at 189.

as a valid exercise of legislative authority, albeit limited to the one-time use for approval of the Dakota Interstate Low-Level Radioactive Waste Management Compact. The court ruled, however, that the statute would be unconstitutional if used as an automatic legislative or electorate referral of *all* enactments involving nuclear waste disposal.[114]

The petition offers an alternative method of reform. Since public participation in hazardous waste facility siting hearings usually consists of comments from individual citizens, special interest groups, and ideologically based citizens' groups, a petition mechanism could be implemented allowing for more effective input. The procedure allows recognition of groups by requiring a set number of signatures as a prerequisite for participation.[115] At the very least, this could help ensure broad-based public interest representation and would minimize the perception of public preemption. It would also improve the effectiveness of non-ideologically based citizens' groups by giving them an opportunity to participate.[116]

2. *Mitigation of Home Rule.* Halting mitigation of home rule offers another method for reforming facility siting procedures, as it protects local controls over the siting process. In the past, communities have passed local ordinances prohibiting the siting of low-level radioactive waste facilities in their area.[117] The recent hazardous waste facility siting controversy compels states to mitigate their extensions of home rule by passing laws preempting these local ordinances.[118] As of 1981, 16 of 25 states with hazardous waste facility siting statutes had preemptory provisions.[119] Although preemption of the public could occur with a reduction in home rule, the preemptory statutes as they exist today do not totally preclude public participation by the local community. Many states mitigate preemption with provisions allowing for limited local control. Michigan, for example, requires that the state approval board integrate local regulations into the siting decision "to the fullest extent practicable"; Oregon requires local land use approval before permit application; and Rhode Island mandates negotiation with a local assessment committee before siting.[120]

Although mitigation of home rule limits local control, state legislatures recognize the need to prevent total preemption of the public. Conse-

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114. *Id.* at 192.
115. L. BACOW & M. WHEELER, *supra* note 11, at 112.
116. *See supra* text accompanying notes 88-91.
117. D. MORELL & C. MAGORIAN, *supra* note 22, at 49.
118. *Id.*
119. Bacow & Milkey, *supra* note 25, at 270.
120. MICH. COMP. LAWS ANN. § 299.520(8) (Supp. 1981). *See also* Taylor, The Status of Off-Site Toxic Substance Disposal Facility Siting, Paper presented at the National Conference on Hazardous Wastes and Environmental Emergencies 95, 95-97 (May 14-16, 1983).

quently, this trend toward mitigating home rule will not necessarily prove detrimental to the public since participation on a statewide level may still be enhanced through other reforms. Therefore, easing the trend toward mitigation does not provide the most productive means toward institutionalizing reform.

Public participation can be improved through alternative dispute methods such as the initiative, referendum, and petition, and by halting home rule mitigation. Restructuring the entire facility siting process, however, would provide the comprehensive changes needed to significantly improve public participation.

C. *Restructuring Facility Sitings and Public Participation*

Recognizing the need to totally restructure the facility siting process to enhance public participation, Timothy John Sullivan, in his unpublished thesis "Negotiation-Based Review Processes for Facility Siting," examines three currently available systems for siting hazardous waste facilities: (1) the administrative system presently in use, (2) an auction system, and (3) a negotiation system.[121] The latter is recommended for implementation by Sullivan and by this Note.[122]

Presently, facility sitings are made through regulatory agencies which review and approve proposed facility plans and sites.[123] Multiple layers of the current administrative-governmental model rarely provide for constructive public participation since public comment usually occurs late in the proceedings and has little effect on final decisions.[124] Consequently, citizens exit such proceedings disillusioned due to a perception of being co-opted and compromised.[125] Mechanisms discussed previously, such as the Citizens Boards and statutory formalization of public participation could be used to improve this system.[126]

By contrast, the auction system requires each locality to submit a bid in the amount the locality requires as compensation for providing a site.[127] The developer then chooses, creating a market system for facility siting.[128] The compensatory aspects of this system mirror the incentives plan of the Midwest Interstate Low-Level Radioactive Waste Commission Summary Report, however, restrictions are needed to pre-

121. T. SULLIVAN, *supra* note 107, at 52-60.
122. *Id.* at 60.
123. *Id.*
124. *Id.* at 59-61.
125. *See supra* text accompanying notes 26-27 & 58-60.
126. *See supra* text accompanying notes 93-105.
127. T. SULLIVAN, *supra* note 107, at 60.
128. *Id.*

vent compromising health and safety concerns for financial gains.[129] Although public participation in such a method could be substantial as control over the facility siting would return to the locality, the dangers of compromising safety for cost efficiency make this plan neither viable nor likely as an alternative to the present administrative system.[130]

Using the mechanisms of environmental mediation and negotiation, the third alternative appears most workable in view of the comprehensiveness of the system. The procedure requires developers, government, and sub-governmental groups to join in negotiating issues crucial to facility sitings, including technological surveys, tax assessments, mitigation efforts, and local compensation.[131]

1. *Codification of a Negotiation-Based Facility Siting Process.* The Negotiation-Based Facility Siting Process would be established through state statutes as a formal mechanism for communication between developers and public interest opponents.[132] This Note proposes modification of Sullivan's model for the Negotiation-Based Review Process in order to accommodate the unique requirements of low-level radioactive waste facility sitings. First, the statutory scheme would mandate negotiation of sitings relative to project design, local compensation, and methods of mitigating project impact.[133] Second, mandatory participation by the developer and government agencies, and an automatic petition process would be used to identify community and special interest group participants.[134] Third, mediation techniques would be used to prevent bargaining breakdowns by empowering a mediator to choose an agenda, assist in communications, and use facts to deflate extreme positions and obtain formal endorsement of agreements.[135] Fourth, formal deadlines would be implemented, along with compensatory and incentive mechanisms.[136] These provisions would have enforcement authority analogous to that of the LLRW Policy Act and Amendment milestones, and similar to those found in the Midwest Interstate Low-Level Radioactive Waste Commission Summary Report's "Volunteer Plan" for the host state

129. *Midwest Summary Report*, *supra* note 18. *See also supra* text accompanying notes 67-80.
130. T. SULLIVAN, *supra* note 107, at 74-76.
131. *Id.* at 60.
132. *Id.* at 77.
133. *Id.* at 282.
134. *Id.* at 283.
135. *Id.* at 276.
136. *Id.* at 284.

decision.[137] Finally, a referendum procedure would be enacted allowing for local approval or rejection of the final agreement.[138]

This last provision reflects the state-wide referendum procedure approved by the South Dakota Supreme Court in *Wyatt v. Kundert.*[139] Since the court failed to approve the referendum as an *institutionalized* procedure, a referendum provision allowing for local approval of every facility siting agreement would likely be viewed by state courts as an unconstitutional delegation to local citizens of a power which the state legislature cannot extend to all citizens.[140] Acceptance of this mechanism is contingent upon a state's constitution, and whether the referendum provision is interpreted as initiating a "new" referendum each time it is used, or whether the statute-based proposal is viewed as an institutionalized referendum, thus making it an unconstitutional delegation of legislative authority.

The negotiation-based proposal resolves many problems presently limiting public impact on siting hazardous waste facilities. One problem it does not confront, however, is public uncertainty caused by ambiguous and confusing information. Therefore, an institutionalized public information program is necessary to combat this unique problem.

2. *Public Information Supplementation of a Negotiation-Based Model for Facility Siting.* A public information program would educate citizens resulting in a more realistic public perception of the risks of radioactive waste disposal. A workable and effective program should meet three criteria. First, the source of public information must be credible.[141] This could be achieved, ostensibly, through modified use of a Science Court.[142] Second, information must be consistent in tone, in content, and presented in a timely and accurate manner.[143] Clarification of technical information without oversimplifying may be achieved through openness in risk projections, thus preventing the public perception of being "held out" on.[144] Finally, public information should be provided regularly or with advance notice, using a variety of channels to achieve the widest dissemination of materials.[145]

This public information system would enlarge the role of the public by improving citizens' abilities to realistically balance competing costs and benefits complicating the siting process. Ultimately, this would

137. *See supra* text accompanying notes 72-75.
138. T. SULLIVAN, *supra* note 107, at 283.
139. 375 N.W.2d 186 (S.D. 1985).
140. *Id.* at 192.
141. Mileti & Williams, *supra* note 81, at 72.
142. *See supra* text accompanying notes 98-105.
143. Mileti & Williams, *supra* note 81, at 72.
144. *Id.*
145. Vierima Letter, *supra* note 59.

legitimize public participation, making it more effective from the perspective of citizens, land developers, and government officials.

VI. CONCLUSION

Statistics demonstrating participation at nuclear waste disposal facility siting meetings "suggest a trend away from disproportional participation by experts, nuclear industry, and the federal government and toward greater participation by individuals, citizens groups, and state and local government officials."[146] As states begin to implement the Low-Level Radioactive Waste Interstate Compacts, legislators should recognize and attempt to counteract public fears of preemption by providing a more effective role for public participation through reformed siting procedures. Improvements to current procedures could be implemented through alternative dispute mechanisms such as Citizens Boards, Science Courts, and public information programs. In the alternative, this Note recommends a comprehensive restructuring of state siting processes using a Negotiation-Based Review Process. Using the discussed procedures, a state can aid interstate compact commissions in resolving the low-level radioactive waste disposal crisis by establishing and legitimizing a role for the public in siting decisions.

As one Midwest Interstate Low Level Radioactive Waste Commissioner warns, "We have a relatively short time in which to accomplish a great deal of education before a productive dialogue can take place. The federal milestones we are up against are very strict...[and]...public participation is a critical element in any siting plan."[147] Responsibility for siting a facility rests with the state not with the interstate compact commission. Thus, states must accept responsibility for low-level radioactive waste management by formulating effective intra-state programs which recognize and enhance the public's role in low-level radioactive waste facility sitings.

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146. Marcus, *Analysis of Participation at Nuclear Waste Meetings: The Representation of Divergent Concerns*, 2 RADIOACTIVE WASTE MGMT. 363, 370-71 (June 1982).

147. Vierima Letter, *supra* note 59.